



# **Clean Coal Technology and California Energy Policy: An Environmental Perspective from the Interior West**



**WESTERN RESOURCE**  
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**Committee Workshop on Clean Coal Technology Status and  
Potential Issues for California Energy Policy:  
2005 Integrated Energy Policy Report (IEPR)**

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# Western Resource Advocates (WRA)

- **Regional non-profit working to protect the environment of the Interior West**
- **Energy Program**
  - Promotes clean energy development in the region
  - Interdisciplinary staff – economists, engineers, lawyers
  - Work primarily in state & regional forums
    - PUCs, state legislatures, air quality permitting, WGA (CDEAC, WRAP), Trans. Planning, bi-lateral discussions with electric utilities)
  - Work closely with environmental and clean energy groups active in CA (e.g. ED, CEERT & NRDC)
  - Focus is electric power industry



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# Key Points

- **California markets and energy policy decisions, are a (if not the) critical factor in determining whether genuinely clean coal technologies will play a role in meeting energy needs across the West**
- **Emerging CA policies hold the promise of sending the right signals to power plant developers**
  - Governor Schwarzenegger's carbon reduction targets
  - Energy Action Plan/Loading Order
  - CA RPS
  - CPUC Energy Savings Goals
- **But those signals need to be stronger and clearer if they are to shift investments from conventional to clean coal technologies**



# Presentation Outline

- **Resurgence of coal in the Interior West**
- **Environmental impacts of proposed new coal plants**
- **Coal polarizing the broader regional energy debate**
  - Jeopardizing progress on other clean energy investments
  - Genuinely clean coal offers opportunity to depolarize the debate and move forward a broader clean energy agenda
- **Defining clean coal – WRA's perspective**
- **What can California do to encourage clean coal and other clean energy development in the Interior West**



# Coal's Resurgence in the Interior West

- 31 new coal plants representing over 18,500 MW have been proposed in the region
- 16 plants (8,200 MW) in the permitting process
- Of the 16 plants in permitting
  - 12 sub-critical (5600 MW)
  - 2 super-critical (2250 MW)
  - 2 CFB (350 MW)
  - 0 IGCC

Proposed Coal Plants in the Interior West





## Proposed New Coal Plants Targeting California

- At least 6 proposed plants (5550 MW) targeting CA market
- Economic viability of other proposed plants hinges on selling excess wholesale power to CA
- Additional 6,000 MW part of Frontier proposal
- This would be on top of over 4700 MW of pulverized coal currently owned by CA utilities





# Environmental Implications

- If built, currently proposed coal plants will run through 2060, when our children's children are coming of age
- 8200 MW of new coal currently in the permitting process would emit over 66 million tons of CO<sub>2</sub> per year (59.9 MMtCO<sub>2</sub>e)
  - To put this in perspective, by 2020, according to the Tellus Institute, estimated annual CO<sub>2</sub> reductions from:

• Pavley Bill =	30 MMtCO <sub>2</sub> e
• CPUC Energy Efficiency Goals =	8 MMtCO <sub>2</sub> e
• Accelerated RPS (33% by 2020) =	<u>11 MMtCO<sub>2</sub>e</u>
• Total	49 MMtCO <sub>2</sub> e
- Beyond CO<sub>2</sub> the plants would emit significant amounts of other harmful pollutants contributing to haze, ozone, nitrogen deposition and other air quality problems in the Interior West.
  - 31,000 tons of SO<sub>2</sub> per year
  - 22,000 tons of NO<sub>X</sub> per year
  - 9,000 tons of PM
  - 1.25 tons of mercury



# Coal Polarizing the Energy Debate in the West

- **Nearly all of the proposed plants are being challenged in air quality permitting processes, siting processes and PUC proceedings**
- **Polarization jeopardizes other clean energy investments**
  - Opposition to new transmission will be intense if built around new conventional coal
  - Potentially forecloses new renewable energy development needing transmission
  - Everybody playing defense rather than focusing on clean energy solutions and required policy actions
- **Focusing on genuinely clean coal development and establishing that it has a place as part of clean energy future can depolarize the debate**





# Defining Clean Coal

- **Modern IGCC technology should be the benchmark**
- **Coal technology considered clean if:**
  - Plant is capable of economically capturing and storing its carbon dioxide emissions
  - Emission rates for criteria pollutants such as SO<sub>2</sub> and NO<sub>x</sub> and toxic pollutants such as mercury are no greater than a modern IGCC coal unit with state-of-the-art pollution control equipment
  - Water use no greater than modern IGCC
    - IGCC typically 50% less water use than pulverized coal
  - Sited where opportunities exist to beneficially use or geologically sequester captured carbon



## **Barriers to IGCC**

- **Cost premium relative to conventional pulverized coal (w/o CCS)**
- **Perceived technology risk**
- **Lack of experience with western sub-bituminous coals**
- **Concerns over operations at elevation**
- **No requirement to factor in carbon when making technology decision**



# What Can California Policy Makers Do

- **Emerging CA policies have the potential to sending the right signals to power plant developers but those signals need to be stronger and clearer if they are to shift investments from conventional to clean coal technologies**
- **Reinforce & Publicize Loading Order (efficiency, renewables, clean fossil fuel, in that order)**
  - Sends a strong message that clean energy is a priority for California
  - Need to make this policy known to out of state power plant developers
- **Require all power plants serving CA load (whether located in state or out of state) to meet minimum environmental standards**
  - For coal plants IGCC should be the performance benchmark
- **Make clear that all-imported power counts against California's carbon targets**
  - Signals that carbon must be factored into the coal technology choice



# What Can California Policy Makers Do (2)

- **Look at partnering with supplying states to encourage IGCC (or equivalent) clean coal investments**
  - E.g. to help narrow any cost premium on IGCC (or equivalent) clean agree that if supply side state provides tax or other incentives to reduce premium, consumer states will cover the difference
- **Support IGCC demonstration project in West using western coals at elevation**
- **Encourage and allow cost recovery for pollution control investments/repowerings to clean up existing CA owned coal plants**



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